



IN THE SPECIFICATION

Drawings

The Examiner has objected to the seven (7) sheets of **Figures 1-6** under 37 C.F.R. § 1.83 (a) for not showing every feature of the invention specified in the claims.

Applicants herewith submit four (4) new sheets of drawings for **Figures 7A-7D** on the following pages.

The new sheets of drawings show the bi-layers of a multiple layer structure of a broad-angle multilayer (ML) mirror in an embodiment of the present invention. The bi-layer of Molybdenum and Silicon may include thicknesses, such as shown in **Table 1**, that may be variable in different portions (**710, 720, 730**) of the structure located over a substrate **700**.

No new matter has been added.

Applicants respectfully request the Examiner to enter the four (4) new sheets of drawings for **Figures 7A-7D**.

Detailed Description

Applicants herewith submit one (1) replacement paragraph [0026] for the detailed description of the specification on the following page.

The replacement paragraph is added in connection with the addition of the new sheets of drawings.

No new matter has been added.

Applicants respectfully request the Examiner to enter the replacement paragraph [0026] for the specification.

[0026] Based on the characteristics of the broad-angle ML mirror, pupil apodizations and phase shifts at the extreme angles will be reduced if mirror M3 shown in the system of **Figure 1** were replaced with the broad-angle ML mirror described in **Table 1**. In an embodiment of the present invention, a broad-angle multilayer (ML) mirror may include a multiple layer structure to provide uniform reflectivity over a wide range of incident angles with small phase shifts. In an embodiment of the present invention, the ML mirror or structure may include 36 bi-layers. As shown in an embodiment of the present invention in **Figures 7A-7D**, the bi-layers in the ML mirror or structure may have a variable thickness in different portions **710, 720, 730**, over a substrate **700** of the ML mirror or structure. In an embodiment of the present invention as shown in **Table 1**, the bi-layer may include Molybdenum (Mo) with a thickness of 2.4 – 11.3 nm and Silicon (Si) with a thickness of 3.6 – 10.4 nm. In another embodiment of the present invention as shown in **Table 1**, Molybdenum may have a thickness of 2.4 – 3.7 nm except for a thicker bi-layer **1** located adjacent or nearest to the substrate and Silicon may have a thickness of 3.5 – 4.1 nm except for thicker bi-layers **3, 5, and 15** located farther from the substrate. In another embodiment of the present invention, the ML mirror or structure may include additional bi-layers. More than thirty-six bi-layers may be located over the substrate. The additional bi-layers may include Mo/Si bi-layers. The additional bi-layers may have a variable thickness.

Detailed Description

The Examiner has objected to the disclosure because of the following informalities: the last three lines of **Table 1** on page 8 of the specification are unclear due to the overlapping of words on the values.

Applicants herewith submit one (1) substitute **Table 1** located between paragraph [0025] and paragraph [0026] on page 8 of the specification on the following page.

No new matter has been added.

Applicants respectfully request the Examiner to enter the substitute **Table 1** on page 8 of the specification.

BI-layer #	Material	Thickness [nm]	Material	Thickness [nm]
0	Substrate Si	10.48		
1	Mo	11.29	Si	3.49
2	Mo	3.74	Si	3.5
3	Mo	3.73	Si	10.44
4	Mo	3.69	Si	3.48
5	Mo	3.56	Si	7.64
6	Mo	3.46	Si	3.5
7	Mo	3.63	Si	3.57
8	Mo	3.62	Si	3.6
9	Mo	3.62	Si	3.63
10	Mo	3.6	Si	3.66
11	Mo	3.56	Si	3.69
12	Mo	3.52	Si	3.74
13	Mo	3.44	Si	3.83
14	Mo	3.26	Si	4.06
15	Mo	2.41	Si	8.33
16	Mo	3.07	Si	3.85
17	Mo	3.42	Si	3.75
18	Mo	3.5	Si	3.72
19	Mo	3.53	Si	3.71
20	Mo	3.53	Si	3.72
21	Mo	3.53	Si	3.72
22	Mo	3.52	Si	3.73
23	Mo	3.51	Si	3.74
24	Mo	3.49	Si	3.75
25	Mo	3.48	Si	3.76
26	Mo	3.46	Si	3.78
27	Mo	3.44	Si	3.79
28	Mo	3.41	Si	3.81
29	Mo	3.38	Si	3.83
30	Mo	3.35	Si	3.86
31	Mo	3.31	Si	3.89
32	Mo	3.26	Si	3.92
33	Mo	3.19	Si	3.97
34	Mo	3.11	Si	4.03
35	Mo	3	Si	4.1
36	Mo	2.61		
37	Air			

Summary of the Invention

The Examiner has objected to the specification because it does not have a Summary of the Invention. In the opinion of the Examiner, the Summary of the Invention is required. See 37 C.F.R. § 1.73 and M.P.E.P. § 608.01 (a) and (d).

Applicants respectfully disagree with the Examiner. The instructions provided in 37 C.F.R. § 1.73 clearly includes language that is permissive and not mandatory: "A brief summary of the invention indicating its nature and substance, which may include a statement of the object of the invention, should precede the detailed description. Such summary should, when set forth, be commensurate with the invention as claimed and any object recited should be that of the invention as claimed."

Similarly, the instructions provided in M.P.E.P. § 608.01 (a) are also permissive: "The elements of the application, if applicable, should appear in the following order: ..., (4) Specification, ... brief summary of the invention...."

Furthermore, the instructions provided in M.P.E.P. § 608.01 (d) are also permissive: "... the summary should be directed to the specific invention being claimed, ..."; "... the subject matter of the invention should be described in one or more clear, concise sentences or paragraphs."; "the brief summary, if properly

written...;"; "The brief summary **should be** more than a mere statement of the objects of the invention,..."

Applicants respectfully request the Examiner to withdraw the objection regarding the absence of a Summary of the Invention.

Antecedent Basis

The Examiner has objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. See 37 C.F.R. § 1.75 (d) (1) and M.P.E.P. § 608.01 (o).

In the opinion of the Examiner, the specification does not provide support for the feature related to the material of the layers as recited in claim 10.

In the opinion of the Examiner, the descriptions of the invention as provided in pages 4-10 does not provide any information related to the use of the materials of molybdenum and beryllium for the multilayer mirror of the invention.”

Applicants have removed, without prejudice, the reference to “Mo/Be bi-layers” in claim 10.

Applicants respectfully request the Examiner to withdraw the objection to the specification as failing to provide proper antecedent basis for the claimed subject matter.